Extron® Electronics
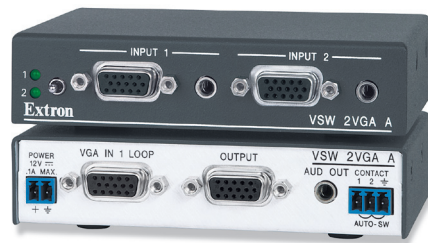
INTERFACING, SWITCHING AND CONTROL

User's Manual

VSW 2VGA A

2-Input, 1-output VGA and Audio Switcher

Precautions

Safety Instructions • English

⚠ This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.

⚡ This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

Caution

Read Instructions • Read and understand all safety and operating instructions before using the equipment.

Retain Instructions • The safety instructions should be kept for future reference.

Follow Warnings • Follow all warnings and instructions marked on the equipment or in the user information.

Avoid Attachments • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

Consignes de Sécurité • Français

⚠ Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).

⚡ Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

Attention

Lire les instructions• Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

Conserver les instructions• Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

Respecter les avertissements • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

Eviter les pièces de fixation • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

Sicherheitsanleitungen • Deutsch

⚠ Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.

⚡ Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

Achtung

Lesen der Anleitungen • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits-und Bedienungsanleitungen genau durchlesen und verstehen.

Aufbewahren der Anleitungen • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

Befolgen der Warnhinweise • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

Keine Zusatzgeräte • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

Instrucciones de seguridad • Español

⚠ Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.

⚡ Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

Precaucion

Leer las instrucciones • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

Conservar las instrucciones • Conservar las instrucciones de seguridad para futura consulta.

Obedecer las advertencias • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

Evitar el uso de accesorios • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrian implicar riesgos.

Warning

Power sources • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

Power disconnection • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

Power cord protection • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

Servicing • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

Slots and openings • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

Lithium battery • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Avertissement

Alimentations• Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de le contourner ni de le désactiver.

Déconnexion de l'alimentation• Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

Protection du cordon d'alimentation • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

Réparation-maintenance • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à ces opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

Fentes et orifices • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

Lithium Batterie • Il a danger d'explosion s'il y a remplactment incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un ype equivalent recommande par le constructeur. Mettre au reut les batteries usagees conformement aux instructions du fabricant.

Vorsicht

Stromquellen • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdanschluß, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

Stromunterbrechung • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stomversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

Schutz des Netzkabels • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegengestellt werden können.

Wartung • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

Schlitze und Öffnungen • Wenn das Gerät Schlitze oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

Litium-Batterie • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

Advertencia

Alimentación eléctrica • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearia ni eliminaria.

Desconexión de alimentación eléctrica • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

Protección del cables de alimentación • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

Reparaciones/mantenimiento • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

Ranuras y aberturas • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

Batería de litio • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

安全须知 • 中文

⚠ 这个符号提示用户该设备用户手册中有重要的操作和维护说明。

⚡ 这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。 设备必须使用有地线的供电系统供电。 第三条线（地线）是安全设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线，避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。 设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。 不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。 必须使用与厂家推荐的相同或相近型号的电池。 按照生产厂的建议处理废弃电池。

FCC Class A Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The Class A limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

NOTE *This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance with FCC emissions limits.*

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All trademarks mentioned in this manual are the properties of their respective owners.

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Introduction

About this Manual

This manual contains information about the Extron VSW 2VGA A switcher. The terms "VSW 2VGA A" and "switcher" are used interchangeably in this manual. The Extron VSW I AAP interface (part # 70-529-xx), an optional accessory used when several VSW 2VGA A switchers are daisy chained together, is also discussed.

About the VSW 2VGA A

The Extron VSW 2VGA A is a compact and economical two-input, one-output VGA switcher with unbalanced stereo audio and 300 MHz (-3 dB) video bandwidth. It accepts two VGA-QXGA, RGBHV, RGBS, RGsB, RsGsBs, component video, or HDTV component video inputs. The switcher has two unbalanced stereo audio inputs and one unbalanced stereo audio output. It also features a buffered local monitor output for Input 1.

A front panel toggle switch, a contact closure controller, or the autoswitching option can be used for input selection.

Daisy Chaining the VSW 2VGA A

Up to ten VSW 2VGA A switchers can be daisy chained together with each switcher's input separately fed and controlled by an optional accessory interface, the VSW I AAP (part #**70-529-*xx***). Figure 1-1 is an example of how several such switcher-interface combinations can be daisy chained together in a boardroom environment.
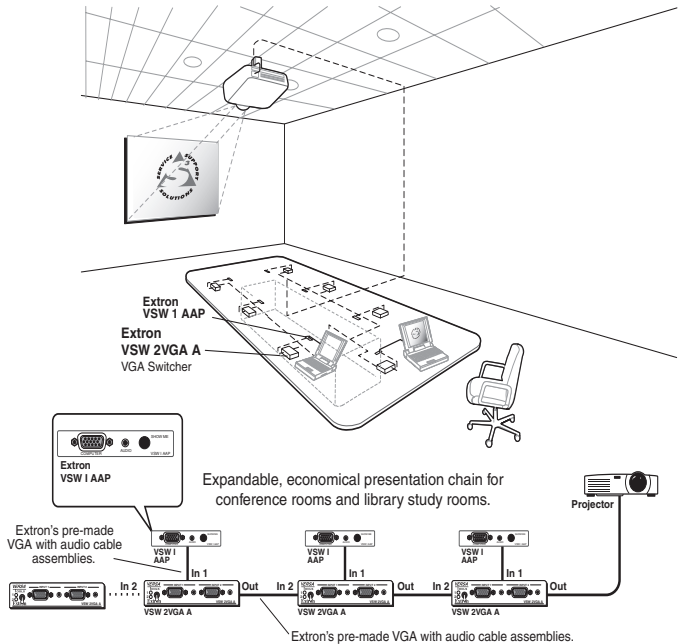

Figure 1-1 — Daisy chaining the multiple switchers

By default, all switchers are set to input 2 as the active input; therefore, in a daisy chain of switchers the VGA and audio signals flow from one switcher to input 2 of the next switcher in the chain. The switchers are daisy chained in this fashion until the last switcher in the daisy chain outputs to a projector and audio amplifier.

Up to ten switchers can be daisy chained together without any degradation in picture quality. One power supply powers up to five switchers.

Introduction, cont'd

Features

Autoswitching ability — The VSW 2VGA A can detect active
sync signals and automatically switch to the highest
numbered active input.

Furniture mountable — The VSW 2VGA A can be mounted
on a rack shelf, under a desk or podium, through a desk
or furniture, or to a projector mount, using optional
hardware.

Daisy chaining — Multiple VSW 2VGA A switchers can be
daisy chained together to form a presentation system.
Each switcher can then be separately controlled through
an Extron VSW I AAP interface.

Stereo audio — Unbalanced stereo audio inputs and outputs on
3.5 mm stereo mini jacks.

2

Chapter Two

Installation and Operation

Installation Overview

Mounting the VSW 2VGA A

Front Panel Features

Rear Panel Features

Operation

Installation and Operation

Installation Overview

To install and set up the VSW 2VGA A for operation, follow these steps:

1 Turn all of the equipment off. Make sure that the video and audio sources (computers, stereos, tape decks, or other devices), the VSW 2VGA A, the output devices (projectors, speakers), and the contact closure control device are all turned off and disconnected from the power source.

2 If you are going to daisy chain two or more switchers with VSW I AAP control panels, identify the revision of the VSW 2VGA A board (for configuring the VSW I AAPs) and configure the switchers' jumpers. See "Setting the VSW 2VGA A Jumpers" on page 2-10.

3 If desired, mount the switcher. See "Mounting the VSW 2VGA A" in this chapter.

4 Attach the cables. See "Front Panel Features" and "Rear Panel Features" in this chapter.

5 Connect power cords and turn on the devices in the following order: output devices, contact closure controller, VSW 2VGA A switcher, and input devices.

6 Select an input using the front panel input toggle switch or the contact closure controller.

7 The image should now display, and sound should be audible. If not, ensure that all devices are plugged in and receiving power. Check the cabling and make adjustments as needed. Select a different input to check for a picture and sound.

Mounting the VSW 2VGA A

NOTE *If you are going to daisy chain two or more switchers with VSW I AAP control panels, identify the revision of the VSW 2VGA A board (for configuring the VSW I AAPs) and configure the switchers' jumpers **before mounting the switchers**. See "Setting the VSW 2VGA A Jumpers" on page 2-10.*

The VSW 2VGA A can be mounted in a rack, or under or through furniture, using one of the following optional mounting kits:

- RSF 123 3 inch rack shelf kit (part **#60-190-20**)

- RSB 123 3 inch rack shelf (part **#60-604-20**)

- RSU 126 6 inch deep universal rack shelf kit (part **#60-190-10**)

- RSB 126 6 inch deep basic rack shelf (part **#60-604-10**)

- RSU 129 9 inch 1U universal rack shelf kit (part **#60-190-01**)

- RSB 129 9 inch 1U basic rack shelf (part **#60-604-01**)

- MBU 125 Under-desk mount kit (part **#70-077-01**)

- MBD 129 Through-desk mount kit (part **#70-077-02**)

When mounting the switcher, take cabling and power availability into consideration. Follow the appropriate mounting procedure on the following pages.

Rack shelf mounting

UL rack mounting guidelines

The following Underwriters Laboratories (UL) guidelines pertain to the safe installation of the VSW 2VGA A in a rack.

1. **Elevated operating ambient temperature —** If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient temperature. Therefore, install the switcher in an environment compatible with the maximum ambient temperature (Tma = +122° F, +50° C) specified by Extron.

2. **Reduced air flow —** Install the equipment in a rack so that the amount of air flow required for safe operation of the equipment is not compromised.

3. **Mechanical loading —** Mount the equipment in the rack so that a hazardous condition is not achieved due to uneven mechanical loading.

4. **Circuit overloading —** Connect the equipment to the supply circuit and consider the effect that circuit overloading might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

5. **Reliable earthing (grounding) —** Maintain reliable grounding of rack-mounted equipment. Pay particular attention to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Rack mounting instructions

1. If feet were installed on the bottom of the switcher, remove them.

2. Mount the VSW 2VGA A on one of the following rack shelves:

    - RSF 123 rack shelf kit (part #**60-190-20**)
    - RSB 123 rack shelf (part #**60-604-20**)
    - RSU 126 6 inch deep universal rack shelf kit (part #**60-190-10**)
    - RSB 126 6 inch deep basic rack shelf (part #**60-604-10**)
    - RSU 129 1U universal rack shelf kit (part #**60-190-01**)
    - RSB 129 1U basic rack shelf (part #**60-604-01**)

    On the standard rack shelf, the switcher mounts in one of four locations to the rear of the rack or in one of four locations to the front of the rack.

3. Attach the switcher to the rack shelf using two 4-40 x 3/16 inch machine screws. Insert the screws from the underside of the shelf and securely fasten them into diagonally opposite corners, as shown in figure 2-1.
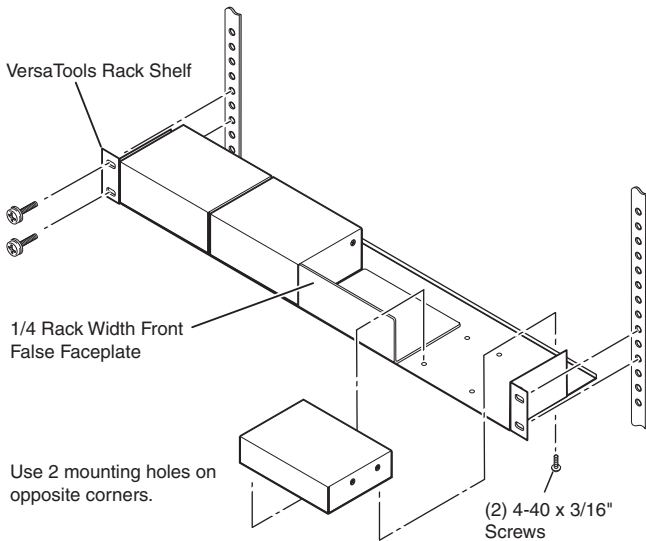
VersaTools Rack Shelf

1/4 Rack Width Front
False Faceplate

Use 2 mounting holes on
opposite corners.

(2) 4-40 x 3/16"
Screws

Figure 2-1 — Mounting the VSW 2VGA A on a rack shelf

NOTE *Since the switcher is 1.0 inch high, there will be a gap of 0.75 inch above the switcher.*

4.   Attach the rack shelf to the rack using four
     10-32 x 3/4 inch bolts (provided). Insert the bolts through
     #10 beveled washers, then through the holes in the rack
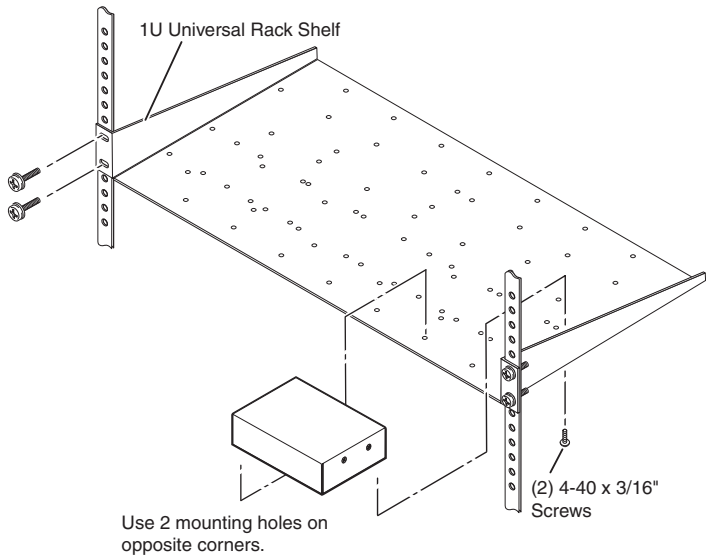   ears and rack, as shown in figure 2-2.

1U Universal Rack Shelf

(2) 4-40 x 3/16"
Screws

Use 2 mounting holes on
opposite corners.

*Figure 2-2 — Mounting the VSW 2VGA A on a
standard 1U rack shelf*

Under-desk mounting

1. Attach the under-desk mounting brackets (MBU 125, part **#70-077-01**) to the VSW 2VGA A with the four provided machine screws, as shown in figure 2-3.
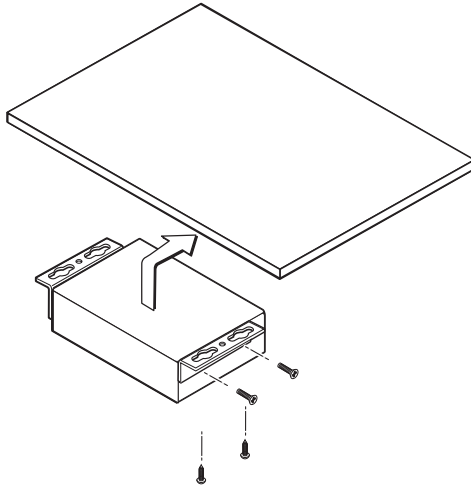

Figure 2-3 — Under-desk mounting brackets

2. Hold the switcher with attached brackets against the mounting surface. Use a soft pencil to mark the location of holes for screws on the desk or other furniture.

3. Drill 1/4 inch (6.4 mm) deep, 3/32 inch (2 mm) diameter pilot holes in the table or desk at the marked screw locations from the underside/inside (concealed side) of the furniture, where the switcher will be located.

4. Attach the VSW 2VGA A to the desk with the provided wood screws.

Through-desk mounting

1. Hold the front panel of the switcher against the furniture. Use a soft pencil to mark the rough-in opening on the desk. The opening, 1.125 inch x 4.425 inch (2.8 cm x 11.2 cm) will be slightly larger than the switcher enclosure.

2. Cut out the material from the rough-in area with a jigsaw. Check the opening size by inserting the switcher part way through the hole. If needed, use a saw, file, or sandpaper to enlarge the hole. Smooth the edges of the hole with sandpaper.

3. Attach the through-desk mounting brackets (MBD 129, part #**70-077-02**) to the VSW 2VGA A with the four provided machine screws, as shown in the through-desk mounting diagram on the next page.

4. Hold the switcher with attached brackets up against the underside of the desk or table. Use a soft pencil to mark the locations of the holes for the screws that will attach the brackets to the desk.

5. Drill 1/4 inch (6 mm) deep, 3/32 inch (2 mm) diameter pilot holes in the desk or table at the marked screw locations. The holes should be drilled from the underside or inside (concealed side) of the furniture, where the switcher will be located.

6. Attach the switcher to the desk or table with the provided wood screws, as shown in figure 2-4.
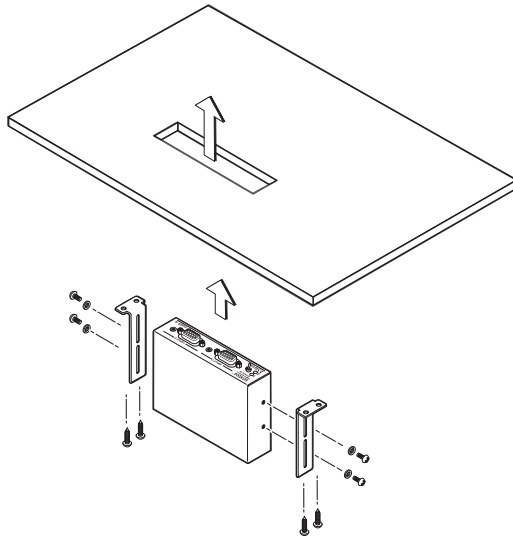

Figure 2-4 — Through-desk mounting

7. To adjust the height of the switcher within the desk, slightly loosen the screws that attach the brackets to the switcher, adjust the height by sliding the switcher up or down, and retighten the screws.
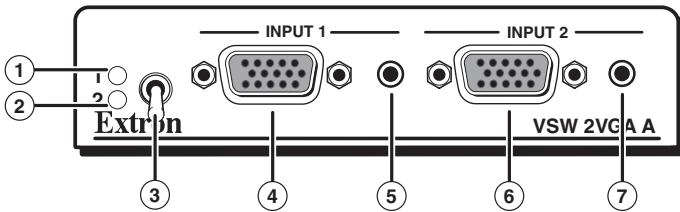
Front Panel Features

Figure 2-5 — VSW 2VGA A front panel features

① **Input 1 LED indicator** — This LED lights green whenever input 1 (video and audio) is selected.

② **Input 2 LED indicator** — This LED lights green whenever input 2 (video and audio) is selected.

> **NOTE** *The LEDs ① and ② above also serve as power up indicators. When the switcher is powered up, the selected input's LED lights green.*

③ **Input select toggle switch** — Toggling this switch up selects input 1; toggling it down selects input 2.

④ **Input 1 video** — Input VGA-QXGA, RGBHV, RGBS, RGsB, RsGsBs, component video, or HDTV component video through this female 15-pin HD connector.

⑤ **Input 1 audio** — Input unbalanced stereo audio through this 3.5 mm mini audio jack (figure 2-6).
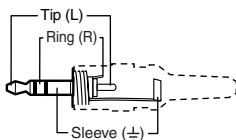
3.5 mm Stereo Plug Connector (unbalanced)

Figure 2-6 — Audio input connector

⑥ **Input 2 video** — Input VGA-QXGA, RGBHV, RGBS, RGsB, RsGsBs, component video, or HDTV component video through this female 15-pin HD connector.

⑦ **Input 2 audio** — Input unbalanced stereo audio through this 3.5 mm mini audio jack. See figure 2-6.
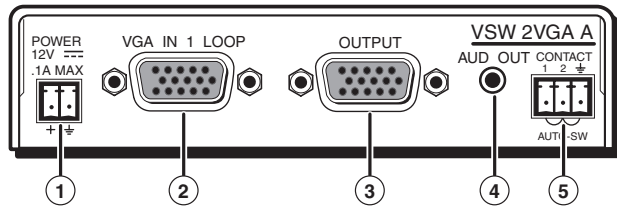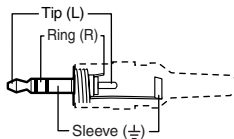
Rear Panel Features

Figure 2-7 — VSW 2VGA A rear panel features

① **Power connector** — Connect the included 12 VDC external power supply to the 2-pole, 3.5 mm captive screw connector.

 NOTE *One power supply can power up to five switchers.*

See "Power connection" in this chapter.

② **Loop Thru Input 1 connector** — female 15-pin HD connector for buffered local monitor output from Input 1

③ **Output** — female 15-pin HD connector for output from Input 1 or Input 2. The output video type follows input type and is either VGA-QXGA, RGBHV, RGBS, RGsB, RsGsBs, component video, or HDTV component video.

④ **Audio Output connector** — Unbalanced stereo audio is output from this 3.5 mm mini audio jack (figure 2-8).

3.5 mm Stereo Plug Connector (unbalanced)

Figure 2-8 — Audio output connector

 NOTE *If you are daisy chaining, connect the other end of the audio cable to the audio Input 2 connector on the downstream switcher.*

⑤ **Contact closure/Autoswitching (Contact/Auto-SW)** —

Contact closure — Connect a contact closure device to this 3-pole, 3.5 mm captive screw connector.

• **Pin 1** selects Input 1 when momentarily connected to ground (pin 3).

- **Pin 2** selects Input 2 when momentarily connected to ground (pin 3).

- **Ground** connects to the ground wire (equipment ground).

NOTE *Simultaneously connecting both pins 1 and 2 to ground (pin 3) turns autoswitching mode on.*

Autoswitching —

NOTE *Autoswitch mode must be disabled when daisy chaining VSW 2VGA A switchers. If the autoswitch mode is enabled, the switchers cannot be daisy chained.*

NOTE *RGsB and RsGsBs inputs and outputs occur in manual mode only.*

NOTE *Autoswitching requires TTL level sync on pin 13 of the 15-pin HD connector.*

Pins 1, 2, and Ground when jumpered/shorted together (as shown at right) turn the autoswitching mode on. When the autoswitching mode is on, the switcher automatically switches to the input that has an active sync signal.

If both inputs have an active sync signal present, input 2 is selected, and the input 2 LED indicator lights. If no active sync signal is present, the input 1 LED indicator still lights to indicate that the unit is still powered on.

NOTE *When the autoswitch mode is active, both daisy chaining and the front panel's input toggle switch are disabled, and the input cannot be manually switched. Any attempt to toggle the switch while the switcher is in this mode results in the flashing of the currently active input's LED indicator. Contact closure is also disabled while in autoswitch mode.*

Setting the VSW 2VGA A Jumpers

NOTE *If you plan to use the VSW I AAP and/or create a daisy chain configuration, you must configure the switchers before installing them in a rack or furniture and making connections.*

Daisy chaining VSW 2VGA A switchers requires you to check and/or set internal jumpers in the switcher.

1. If applicable, disconnect all power to the switcher and any attached devices.

2. Remove the two screws on each side of the switcher
(figure 2-9). Remove the four connector nuts on the front
panel of the switcher. Lift the top cover off of the switcher.

Remove (4) Screws

Remove (4) Connector Nuts
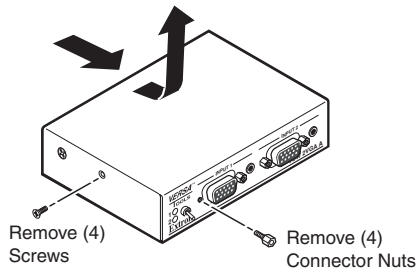
Figure 2-9 — Removing the cover

FRONT PANEL

JMP4   JMP3   JMP1

JMP5   JMP6

Figure 2-10 — VSW 2VGA A jumper locations
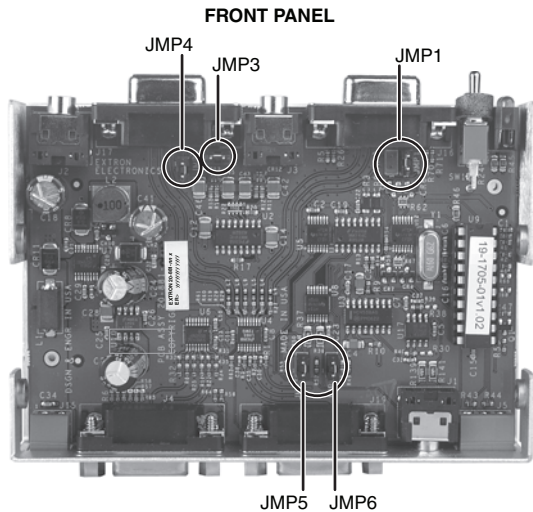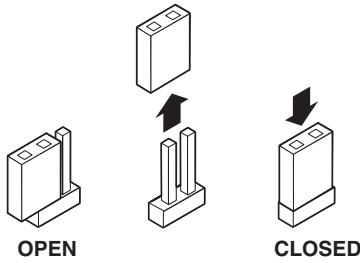
3. Set the jumpers for the switcher. See figure 2-11.
4. Set the cover in place and resinstall the screws remove in
step **2**.

There are five jumpers, numbered JMP1, and JMP3 thru JMP6,
that control daisy chaining on the VSW 2VGA A switcher (figure
2-10). Both data and power must be daisy chained from one
switcher to another.

VSW 2VGA A • Installation and Operation   2-11

OPEN   **CLOSED**

All jumpers are set open (disabled) by default.

Open or close the indicated jumpers in the table below, as needed, to adjust the appropriate settings. See "Using the VSW I AAP" and "Daisy chain configuration" in this chapter for other jumper settings.

	Pin 5 - Control	Pin 9 - +5 VDC
Input 1	JMP 1	
Input 2	JMP 3	JMP 4
Output	JMP 5	JMP 6

Figure 2-11 — Jumper positions

These jumpers enable or disable VGA connector pin 5 (control) and VGA connector pin 9 (power) of the switcher inputs and outputs. Close (install) the jumper for VGA connector pin 5 to daisy chain data to the next switcher, and close (install) the jumper for VGA connector pin 9 to daisy chain power to the next switcher.

NOTE *When the switchers are not daisy chained together or used with the VSW I AAP, all jumpers should be in the default (open) position.*

Power connection

One power supply can power up to five daisy chained switchers. Additional switchers require one or more power supplies. See "Daisy chain configuration", later in this chapter.

Figure 2-12 shows how to wire the power connector.
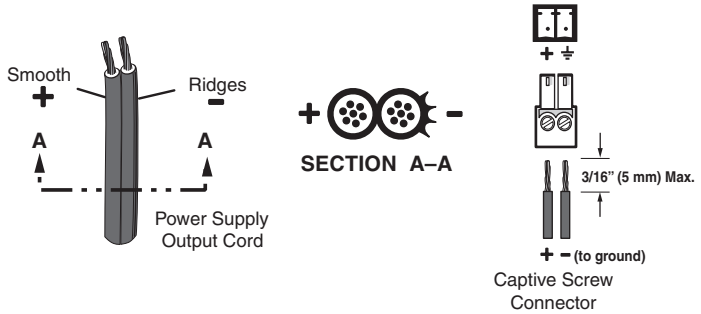
Figure 2-12 — Power connector wiring

CAUTION *The two power cord wires must be kept separate while the power supply is plugged in. Remove power before wiring.*

CAUTION *When you are connecting the power supply, voltage polarity is critical. Applying power with incorrect voltage polarity could damage the power supply and the VSW 2VGA A. Identify the power cord negative (ground) lead by the ridges on the side of the cord or a black heat shrink wrapping around it.*

NOTE *Strip the jacket to expose 3/16 inch (5 mm) of the conductors. Do not tin the stripped power supply leads before installing the captive screw connector. Tinned wires are not as secure in the captive screw connectors and could be pulled out.*

To verify the polarity before connection, check the no load power supply output with a voltmeter.

NOTE *The maximum number of switchers that can be daisy chained is limited by several factors: power consumption, cable lengths, and the overall distortion of the video and audio signals.*

Operation

Apply power and the input signals. The video and audio output connectors, including the Loop Thru Input 1 connector, should output signals.

Input selection

There are three ways to select between Input 1 and Input 2:

- Toggle the front panel input select switch up (Input 1) or down (Input 2).

- Use the rear panel contact closure capability.

- Press the Show Me button on the VSW I AAP to select the input on the connected VSW 2VGA A switcher.

Using the VSW I AAP

The VSW I AAP can be used on the inputs of a single switcher or on the inputs of multiple switchers in a daisy chain configuration.

Setting the VSW I AAP jumpers

A jumper on the VSW I AAP may need to be shifted from jumper J6 (the default position) to J5, depending on the application. See the following illustration and table.
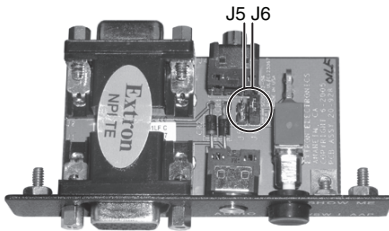
Jumper installed	Switcher compatibility
J6	VSW 2VGA A (Input 1)
J5	VSW 2VGA A (Input 2)

Single switcher example

The following illustration is an example of a single switcher configuration.
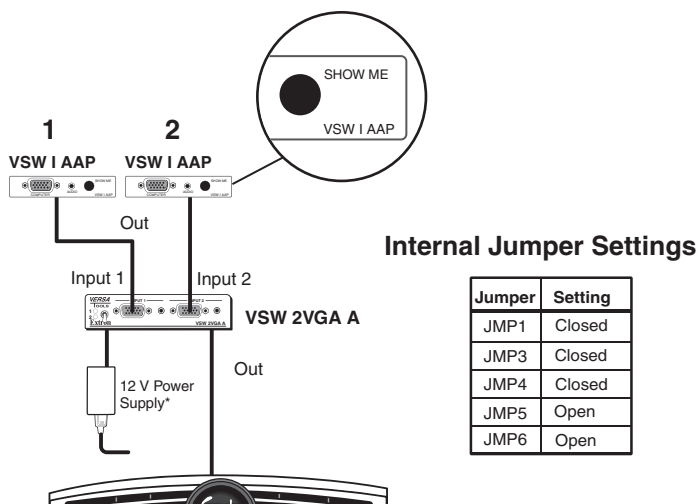
Figure 2-13 — Single switcher configuration

Press the Show Me button on the VSW I AAP to select the corresponding input on the VSW 2VGA A.

Daisy chain configuration

Multiple VSW 2VGA A switchers can be daisy chained together in a loop configuration or a tree comfiguration.

NOTE   *Daisy chaining uses all pins and wires of a standard VGA cable. Not all VGA cables include all pins and wires. Ensure that the VGA cable that you use has all 15 pins connected.*

Loop configuration

In a loop configuration, the output of each VSW 2VGA A is connected to Input 2 of the next VSW 2VGA A switcher. This repetition of one switcher's output to another switcher's input can be repeated for up to a maximum of 10 switchers in a daisy chain. The output of the first switcher is connected to a display.

Source signals are connected to Input 1 of each VSW 2VGA A switcher either directly or through the VSW I AAP interface. Select the source by toggling to Input 1 on the VSW 2VGA A's front panel (or through contact closure on the rear panel) or by pressing the VSW I AAP's Show Me button for the corresponding switcher.

- Up to 10 switchers can be daisy chained in this configuration without any signal degradation.

- A power supply is required for every 5 switchers.

- Configure the jumpers on each VSW 2VGA A according to the following example.

- The VSW I AAP is configured for a loop configuration by default.

NOTE *In a loop configuration, the "show me" feature can be used without a VSW I AAP control panel. Select Input 1 using either the front panel toggle switch (see item ③ in "Front Panel Features") or the rear panel contact closure control (see item ⑤ in "Rear Panel Features") to issue the "show me" control signal.*

Loop configuration example

The illustration on the following page is an example of daisy chaining using a loop configuration.

Figure 2-14 — Loop configuration
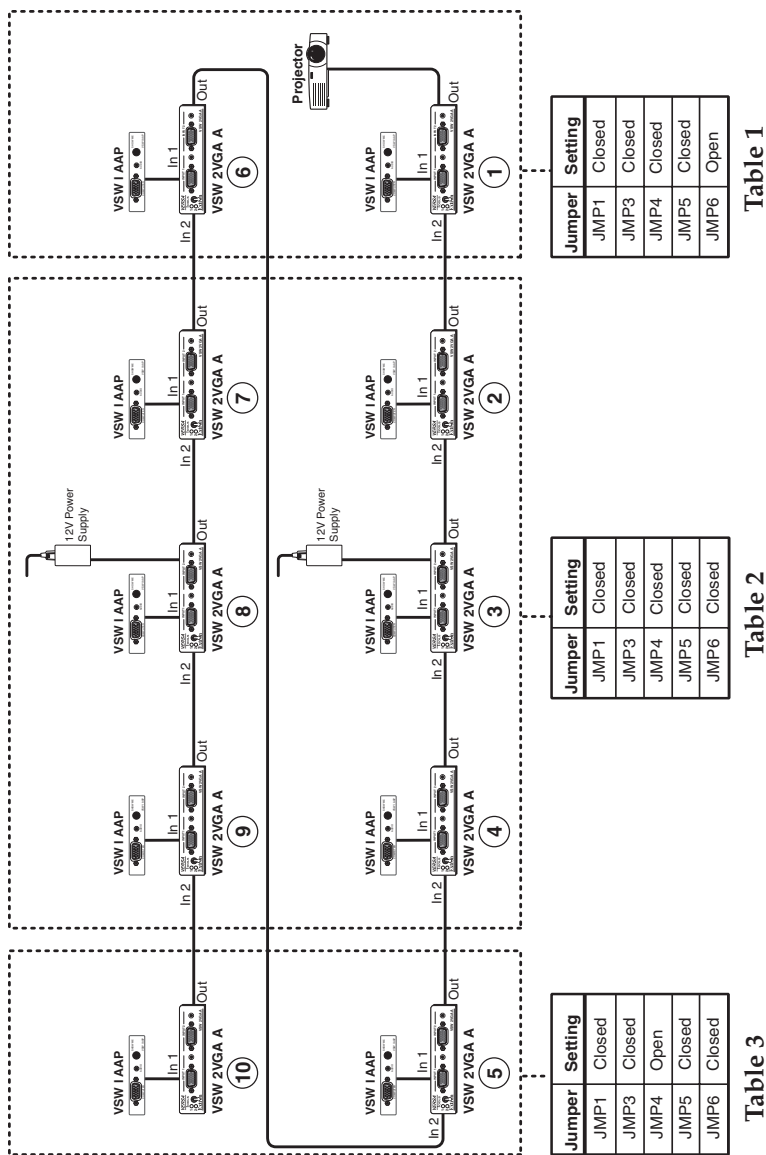
Jumper	Setting
JMP1	Closed
JMP3	Closed
JMP4	Closed
JMP5	Closed
JMP6	Open

Table 1

Jumper	Setting
JMP1	Closed
JMP3	Closed
JMP4	Closed
JMP5	Closed
JMP6	Closed

Table 2

Jumper	Setting
JMP1	Closed
JMP3	Closed
JMP4	Open
JMP5	Closed
JMP6	Closed

Table 3

Tree configuration

In a tree configuration, the output of each VSW 2VGA A switcher is connected to input 1 or input 2 of the next switcher. This repetition of one switcher's output to another switcher's input can be repeated for up to a maximum of 10 switchers in a daisy chain. The output of the last switcher is connected to a display.

Source signals are connected to input 1 and input 2 of each VSW 2VGA A switcher at the top of the tree through a VSW I AAP interface. Select the source by pressing the VSW I AAP's Show Me button for the corresponding switcher.

- Switchers can be daisy chained in this configuration up to ten levels deep without any signal degradation.

- A power supply is required for each switcher in the chain that has its output connected to input 1 of the next switcher.

- Sources can only be selected and connected to the switcher through the VSW I AAP interface.

- Each VSW I AAP must be configured for the tree configuration. See "Using the VSW I AAP" in this chapter for additional information.

Tree configuration example

The following illustration is a simple example of daisy chaining using a tree configuration.
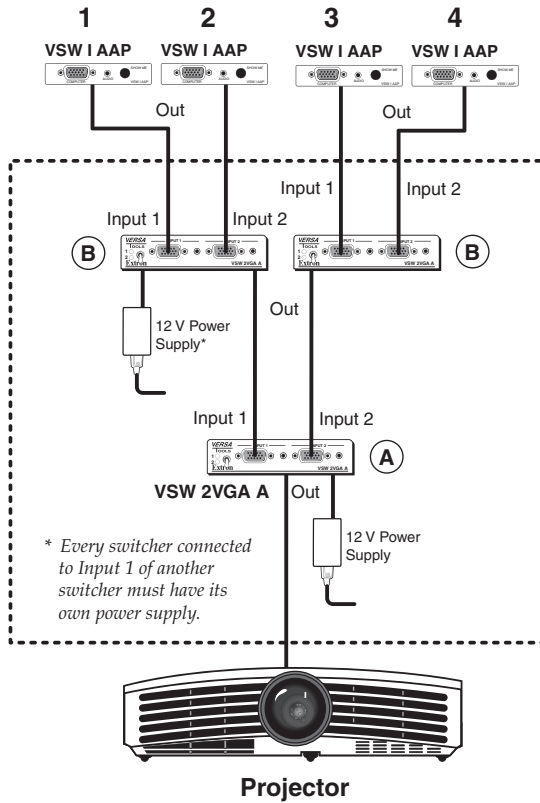
Projector

Internal Jumper Settings

Jumper	Setting
JMP1	Closed
JMP3	Closed
JMP4	Closed
JMP5	Closed
JMP6	Closed

(A)

Jumper	Setting
JMP1	Closed
JMP3	Closed
JMP4	Closed
JMP5	Open
JMP6	Open

(B)

Figure 2-15 — Tree configuration

Appendix A

Specifications, Part Numbers, and Accessories

Specifications

Included Parts

Accessories

Specifications, Part Numbers, and Accessories

Specifications

Video

Gain .... Unity
Bandwidth .... 300 MHz (-3 dB)

Video input and loop through

Number/signal type .... 2 VGA-QXGA RGBHV, RGBS, RGsB*,
RsGsBs*, HDTV component video* input
1 VGA-QXGA RGBHV, RGBS, RGsB,
RsGsBs, HDTV component video* local
monitor loop-through

NOTE *RGsB, RsGsBs, and HDTV component video inputs and outputs work in manual mode only. Autoswitching requires TTL level sync on pin 13 of the 15-pin HD connector.*

Connectors .... 3 female 15-pin HD
Pin connections .... ID bits on pins 4, 11, 12, 15 from inputs 1
and 2: passed to main output
Pin 9 of input 1: floating
Pin 9 of input 2: used for the Show-Me
feature
Nominal level .... 1.0 Vp-p for Y of component video
0.7 Vp-p for RGB and for R-Y and B-Y of
component video
Minimum/maximum levels .... Analog: 0.4 V to 1.8 Vp-p with no offset
Impedance .... 75 ohms
Horizontal frequency .... 15 kHz to 145 kHz
Vertical frequency .... 30 Hz to 170 Hz

Video output

Number/signal type .... 1 VGA-QXGA RGBHV, RGBS, RGsB*,
RsGsBs*, HDTV component video*
(follows input type)
Connectors .... 1 female 15-pin HD
Nominal level .... 1.0 Vp-p for Y of component video
0.7 Vp-p for RGB and for R-Y and B-Y of
component video
Minimum/maximum levels .... 0.4 V to 1.8 Vp-p (follows input)
Impedance .... 75 ohms

NOTE *ID bits are passed through from VGA inputs to the VGA output.*

Sync

Input type .... RGBHV, RGBS, RGsB*, RsGsBs*, bi-level
and tri-level (HDTV) component video
sync

Output type .... RGBHV, RGBS, RGsB*, RsGsBs*, bi-level
and tri-level (HDTV) component video
sync (follows input)

Input level .... 1.8 V to 5.0 Vp-p

Output level .... TTL: 5.0 V p-p, unterminated

Input impedance .... 510 ohms

Output impedance .... 50 ohms

Max. input voltage .... 5.0 Vp-p

Max. rise/fall time .... 40 ns

Polarity .... Positive or negative (follows input)

Audio

Gain .... Unbalanced output: 0 dB

Frequency response .... 20 Hz to 20 kHz, ±0.05 dB

THD + Noise .... 0.002% @ 1 kHz at nominal level (-10 dBV)

S/N .... 94 dB at maximum output (unweighted)

Crosstalk .... -50 dB @ 20 kHz, -75 dB @ 1 kHz and
below 60 Hz

Stereo channel separation .... 96 dB @ 1 kHz

Audio input

Number/signal type .... 2 stereo, unbalanced

Connectors .... (2) 3.5 mm mini audio jacks (tip, ring,
sleeve)

Impedance .... 22k ohms unbalanced, AC coupled

Nominal level .... -10 dBV (316 mVrms)

Maximum level .... +9 dBV, (unbalanced) at 1% THD+N

NOTE   *0 dBu = 0.775 Vrms, 0 dBV = 1 Vrms, 0 dBV ≈ 2 dBu*

Audio output

Number/signal type .... 1 stereo, unbalanced

Connectors .... (1) 3.5 mm mini audio jack (tip, ring,
sleeve)

Specifications, Part Numbers, and Accessories

Impedance .... 50 ohms unbalanced
Gain error .... ±0.1 dB channel to channel
Maximum level (Hi-Z) .... >+9 dBV, unbalanced at 1% THD+N
Maximum level (600 ohm) .... >+7 dBV, unbalanced at 1% THD+N

Control/remote — switcher

Contact closure .... (1) 3.5 mm captive screw connector, 3 pole
for momentary contact
Contact closure pin configurations. 1 = input 1 select, 2 = input 2 select, 3 =
GND
Shorting all three pins together enables
autoswitch mode.
Loop signal .... Momentary low, 250 µs

General

External power supply .... 100 VAC to 240 VAC, 50-60 Hz, external; to
12 VDC, 1 A (max.), regulated
Power input requirements .... 12 VDC, 0.1 A
Temperature/humidity .... Storage: -40 to +158 °F (-40 to +70 °C) /
10% to 90%, noncondensing
Operating: +32 to +122 °F (0 to +50 °C) /
10% to 90%, noncondensing
Cooling .... Convection, no vents
Mounting
　　Rack mount .... Yes, with optional 1U rack shelf
　　Furniture mount .... Yes, with optional under-desk mounting
kit or through-desk mounting kit
　　Pole mount .... Yes, with optional pole mount kit
Enclosure type .... Metal
Enclosure dimensions .... 1.0" H x 4.3" W x 3.0" D (quarter rack
wide)
2.5 cm H x 10.9 cm W x 7.6 cm D
(Depth excludes connectors.)
Product weight .... 0.5 lb (0.3 kg)
Shipping weight .... 3 lbs (2 kg)
Vibration .... ISTA 1A in carton (International Safe
Transit Association)
Regulatory compliance
　　Listings .... CE, c-UL, UL
　　Compliances .... CE, C-tick, FCC Class A, ICES, VCCI

MTBF... 30,000 hours

Warranty... 3 years parts and labor

NOTE   *All nominal levels are at ±10%.*

NOTE   *Specifications are subject to change without notice.*

Included Parts

These items are included in each order for a VSW 2VGA A:

Included parts	Part number to reorder
VSW 2VGA A	60-758-01
12 VDC, 1A external power supply	70-775-01
3.5 mm 3-pole captive screw connector	
3.5 mm 2-pole captive screw connector	
VSW 2VGA A Setup Guide	

Accessories

Accessories	Part number
VSW I AAP — black	70-529-11
VSW I AAP — white	70-529-21
VSW I AAP — RAL9010 white	70-529-51
RSB 123 — 1U basic rack shelf	60-604-21
RSF 123 — 1U rack shelf kit	60-190-20
RSU 126 — 1U 6" deep universal rack shelf kit	60-190-10
RSB 126 — 1U 6" deep basic rack shelf	60-604-11
RSU 129 — 1U universal rack shelf kit	60-190-01
RSB 129 — 1U basic rack shelf	60-604-02
MBU 125 — 1U under-desk mount kit	70-077-01
MBD 129 — 1U through-desk mount kit	70-077-02

Specifications, Part Numbers, Accessories, cont'd

Cable Accessories	Part number
VGA with audio cables	26-490-*xx*
VGA to BNC-5 female cables (SY VGA), 0.5' - 100' (0.15 m - 30.4 m)	26-531-*xx*
VGA to BNC-5 male cables (SY VGA), 0.5' - 100' (0.15 m - 30.4 m)	26-533-*xx*
MSR 6 Adapter, 6" (0.15 m)	26-592-01
3.5 mm Mini Stereo-HQ/10	100-331-01

Specifications, Part Numbers, Accessories, cont'd

Extron Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

USA, Canada, South America,
and Central America:
Extron USA
1001 East Ball Road
Anaheim, CA 92805
U.S.A.

Europe, Africa, and the Middle East:
Extron Europe
Hanzeboulevard 10
3825 PH Amersfoort
The Netherlands

Asia:
Extron Asia
135 Joo Seng Road #04-01
PM Industrial Bldg.
Singapore 368363
Singapore

Japan:
Extron Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan

China:
Extron China
686 Ronghua Road
Songjiang District
Shanghai 201611
China

Middle East:
Extron Middle East
Dubai Airport Free Zone
F12, PO Box 293666
United Arab Emirates, Dubai

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.

Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.